

# Children's Film as Design Fiction: Ethics, Data, and Technology in *Big Hero 6* and *Zootopia*

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**Abstract.** This poster explores how technologies and information are represented in recent children's cinema, seeing these works as diegetic prototypes. We assert that contemporary "kidult" film can serve as a kind of design fiction to explore the ethical and technical tensions of information systems. This approach is supported through close readings of two Disney films, *Big Hero 6* and *Zootopia*, both of which offer uncritical assessments of data aggregation and use in the effort to resolve a crime-adventure story. We sound a note of caution regarding how these films reinforce contemporary cultural concerns about data, privacy, and role of information in society.

**Keywords:** Children's Media, Ethics, Information and Communication Technologies.

## 1 Introduction

Fictional narratives, in print, television and cinema, have been a source of inspiration to the technology industries for more than a century. These narratives also serve as a way of surfacing and interrogating our hopes and anxieties about how technology is incorporated in social practices. David Kirby (2010) asserts that cinema has the potential to create *diegetic prototypes*—prototypes of technologies and practices that are embedded in stories, allowing us to envision future scenarios both exciting and disconcerting. Following the science fiction author Bruce Sterling (2009), a number of scholars (Dourish & Bell, 2014; Reeves, 2012; Tannenbaum, Tannenbaum & Wakary, 2012) have been analyzing these works as *design fiction*. While adult movies are regularly called out for anticipating the future (e.g., *Star Trek, 2001: A Space Odyssey, Gattaca, Minority Report*, etc.), children's movies have gained little attention for their role in helping viewers unpack how values intersect with innovation and technology. Yet, children's cinema is increasingly complex and addresses multiple audiences, including children, adults, and institutional stakeholders (Brown, 2012). As today's children are tomorrow's innovators, educators, and policy makers, we have been remiss in calling out the implications of children's film in shaping our social and technological future. This project aims to address this oversight by highlight-

ing the ways information professionals and educators might employ children's films as a public pedagogy through which to engage young people in conversations regarding representations of technology in popular culture.

In this poster, we analyze two recent Disney animated features that explore the ethical implications of negotiating one's personal and professional rights to access information, particularly in regard to serving and protecting society at large. Released in 2014 and 2016 respectively, *Big Hero 6* and *Zootopia* take up these issues in their representations of data analytics and use, commercial and personal technology, and how information plays a role in the quest for justice. Both films call into question the accountability of citizens who, in their mistrust of institutions and the integrity of those who control them, no longer feel obligated to act within the boundaries of the law. Our close readings, informed by theories of media (Jenkins, 2016), genre (Gates, 2011), and intertextuality (Wilkie, 1999) yield insights into how contemporary children's media is engaging with cultural metanarratives to construct different moralities of information use in today's world.

At a cultural moment in which issues of institutional mistrust, privacy, big data, hacktivism, and technological determinism are at the forefront of daily newscasts, we are mindful of the ways films like *Big Hero 6* (2014) and *Zootopia* (2016) function as creative and critical commentaries on contemporary society. At the same time, we also recognize how these commentaries are shaped and constrained by the genre of the children's film and the ideologies of childhood that underlie it, particularly those of child innocence. The moralities that govern adult conceptions of childhood manifest in the assumptions that legitimate the need for the "children's" film, which entertains and serves as a pedagogical tool through which to educate children on the difference between "right" and "wrong." We consider how each film positions viewers as problem solvers with the civic duty to use information for the good of society, a stance that assumes a universal notion of morality that contradicts the messages of diversity informing both films' narratives.

## 2 Research Questions, Method and Data Source

In our study of *Big Hero 6* and *Zootopia*, we examine the implicit and explicit pedagogical messages for child and adult audiences through the following research questions: 1) In what ways do children's films serve as diegetic prototypes of information and technology systems and practices? 2) What implicit and explicit tensions emerge in filmic depictions of information access and privacy in the digital age? To answer these questions, we adopt a comparative close-reading approach (Looy & Baetens, 2003) that incorporates a tri-part theoretical framework of media (Jenkins, 2016), genre (Gates, 2011), and intertextuality theory (Wilkie, 1999). This theoretical lens contextualizes our examination of *Big Hero 6* and *Zootopia* as "children's media" that are situated within a specific sociohistorical tradition and sociocultural moment. Combining textual analysis with historical/cultural analysis, we highlight the dialogic (Bakhtin, trans. 1981) aspirations of these films, which are undermined by their need to adhere to conservative adult beliefs about childhood.

### 3 Findings

Set in a technologically advanced, post-racial society, *Big Hero 6* (2014) revolves around a revenge plot that encompasses issues of individual and institutional corruption. Adapted from the Marvel Comic, it chronicles the transformation of several technological “wiz kids” and their robot into a group of vigilante superheroes. For these youth, serving and protecting the world often involves ethically questionable ends-means trade-offs, including questionable acquisition, aggregation and analysis of personal data. Engaging in technological warfare, building bigger and better machines to access and analyze more data becomes an impulse reaction. Baymax, designed as a loveable healthcare robot, is altered by the protagonist to scan and analyze vast quantities of biometric data on unsuspecting and unconsulted individuals with the goal of identifying the narrative’s villain. The robot is one of a series of technological inventions showcased throughout the film that emphasizes the supposed “innocence” of algorithms, which are manipulated by those who program them. The futuristic city of San Fransokyo, an obvious allusion to San Francisco and Tokyo, underscores the significance of this technological warfare and its relation to the capitalistic ethos and technological utopianism of Silicon Valley. When faced with the destructive application of his own invention, Hero must face the fact that moral codes and computer codes intersect. For him, fixing the justice system requires fixing the technical system that allows him to enforce his own conceptions of right and wrong.

Like *Big Hero 6*, *Zootopia* (2016) is set in a highly modern, allegorically post-racial society. The film adopts the form of a contemporary animal fable to tell the story of Judy Hopps, a naïve but aspirational bunny police officer, whose idealism is threatened when she realizes that mammals do not live in a world free from the prejudices, discrimination, and historical injustice. Judy’s first case is to solve a series of mammal disappearances, which she does with the help of Nick Wilde, her informant turned partner. As in the case of *Big Hero 6*, Judy’s efforts to serve and protect lead to ethically fraught ends-means trade-offs, including “hustling” and blackmailing informants, accessing restricted information and technologies, colluding with organized crime, and gathering illegal confessions. The juxtaposition of “zoo”—a cage containing wildness—and “utopia”—the vision of the perfect civil society—becomes a metaphor for the hybrid of right and wrong at work within everyone...including the seemingly “innocent” and “helpless.” Judy is most effective as a vigilante hero who abides by her own moral code in order to “fix” the justice system she no longer trusts.

### 4 Scholarly Contribution

Examining these films as diegetic prototypes of information systems allows this study to adopt a novel approach to understanding the pedagogical implications of children’s cinema. The focus on issues related to the use of information and technology enables us to consider how the films’ messages are conditioned by the industry ethics governing the production of children’s movies, which, in themselves represent information technologies designed to enhance the greater good of society by safeguarding chil-

dren's innocence. This analysis thus considers the way each film positions the viewer as a user of information with a responsibility to abide by the ethics of childhood, an ethics that paradoxically privileges both innocence and responsibility. The accessibility of these cinematic narratives, problematic as they may be in their representation of algorithms and data systems, provides an excellent platform through which to engage young people in critical and creative discussions around the ethical tradeoffs inherent to technological development. This work supports a move toward developing public pedagogies for young people around the role of data and algorithms, pedagogies that might be deployed in school libraries, public libraries, and classrooms. Future research will thus explore the way co-reading of films might function as a critical intervention in public educational settings to increase children's information literacy by fostering awareness of the impacts invisible information systems have on our lives and the role contemporary policy plays in regulating them.

## References

1. Bakhtin, M. (author), Holoquist, M. (ed.): *The dialogic imagination*. Holoquist, M., Emerson, C. (trans.). University of Texas Press, Austin, TX (2014).
2. Brown, N.: *The Hollywood Family Film: A History from Shirley Temple to Harry Potter*. I. B. Tauris, London (2012).
3. Dourish, P. & Bell, G.: "Resistance is Futile": Reading Science Fiction Alongside Ubiquitous Computing. *Personal and Ubiquitous Computing* 18, 769–778 (2014).
4. Gates, P.: *Detecting women: Gender and the Hollywood detective film*. SUNY Press, Albany, NY (2011).
5. Jenkins, H.: Youth voice, media, and political engagement: Introducing the core concepts. In: Jenkins, H., Shresthova, S., Gamber-Thompson, L., Kligler-Vilenchik, N., Zimmerman, A. M. (eds.) *By any media necessary: The new youth activism*. pp. 1–60. New York University Press, New York, NY (2016).
6. Kirby, D.: The Future is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-world Technological Development. *Social Studies of Science* 40(1), 41–70 (2010).
7. Looy, J., Baetens, J.: *Close reading new media: Analyzing electronic literature*. Leuven University Press, Leuven (2003).
8. Reed, K., Conli, R. (producers), Hall, D., Williams, C. (directors): *Big Hero 6*. Walt Disney Pictures, United States (2014).
9. Reeves, S.: Envisioning Ubiquitous Computing. In *Proceedings of CHI '12*, ACM Press, New York (2012).
10. Spencer, C. (producer), Howard, B., Moore, R. (directors): *Zootopia*. Walt Disney Pictures, United States (2016).
11. Sterling, B.: Design Fiction. *Interactions*, 20–24 (May/June 2009).
12. Tannenbaum, J., Tannenbaum, K., Wakary, R.: Steampunk as Design Fiction. In *Proceedings of CHI '12*, ACM Press, New York (2012).
13. Wilkie, C.: "Relating Texts: Intertextuality." In: Hunt, P. (ed.) *Understanding children's literature: Key essays from the International Companion Encyclopedia of Children's Literature*. pp. 130–137. Routledge, London (1999).